

Title (en)  
SYSTEM FOR MAGNETORHEOLOGICAL FINISHING OF A SUBSTRATE

Title (de)  
SYSTEM ZUR MAGNETORHEOLOGISCHEN FEINBEARBEITUNG EINES SUBSTRATS

Title (fr)  
SYSTÈME DE FINITION MAGNÉTORHÉOLOGIQUE D'UN SUBSTRAT

Publication  
**EP 2403686 B1 20140122 (EN)**

Application  
**EP 10749207 A 20100302**

Priority  
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Abstract (en)  
[origin: WO2010101925A2] A system for magnetorheological finishing of a substrate. A spherical wheel meant for carrying a magnetorheological finishing fluid houses a variable-field permanent magnet system having north and south iron pole pieces separated by primary and secondary gaps with a cylindrical cavity bored through the center. A cylindrical permanent magnet magnetized normal to the cylinder axis is rotatably disposed in the cavity. An actuator allows rotation of the permanent magnet to any angle, which rotation changes the distribution of flux in the magnetic circuit through the pole pieces. Thus, one can control field intensity in the gaps by positioning the permanent magnet at whatever angle provides the required field strength. Because the field also passes above the pole pieces, defining a fringing field outside the wheel surface, the variable field extends through a layer of MR fluid on the wheel, thus varying the stiffness of the MR fluid as may be desired for finishing control.

IPC 8 full level  
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